

### Remediation – Negative Exponents

After you have watched the video from the wiki, you should try the following problems and then use the key to check your work. If you are successful on this worksheet, take the re-evaluation quiz. Be sure to follow the directions there.

Directions: Please simplify the following without a calculator. Show your work when necessary.

- |   |  |  |  |
|---|--|--|--|
| <p>1. <math>2^{-4}</math></p> <p><math>\frac{1}{2^4}</math> <span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{16}</math></span></p>               | <p>2. <math>\left(\frac{1}{2}\right)^{-4}</math></p> <p><math>2^4 =</math> <span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>16</math></span></p>         | <p>3. <math>\left(\frac{1}{2^{-4}}\right)</math></p> <p><math>\frac{1}{\frac{1}{2^4}}</math> <span style="margin-left: 20px;"><math>1 \cdot \frac{2^4}{1}</math></span></p> <p><span style="margin-left: 100px;"><math>2^4 =</math></span> <span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>16</math></span></p> | <p>4. <math>-(2^4)</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>-16</math></span></p>  |
| <p>5. <math>\left(-\frac{1}{2}\right)^{-4}</math></p> <p><math>(-2)^4</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>16</math></span></p> | <p>6. <math>(-2)^{-4}</math></p> <p><math>\frac{1}{(-2)^4}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{16}</math></span></p> | <p>7. <math>(-2)^4</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>16</math></span></p>   | <p>8. <math>(-2)^{-3}</math></p> <p><math>\frac{1}{(-2)^3}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>-\frac{1}{8}</math></span></p> |

Directions: Please simplify. Be sure to express your answer with positive exponents only.

- |   |   |   |
|---|---|---|
| <p>9. <math>(x^2)^{-3}</math></p> <p><math>x^{-6}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{x^6}</math></span></p>                      | <p>10. <math>\frac{y}{y^5}</math></p> <p><math>y^{-4}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{y^4}</math></span></p>                    | <p>11. <math>(m^{-3})^5</math></p> <p><math>m^{-15}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{m^{15}}</math></span></p>   |
| <p>12. <math>b^4 \cdot b^{-9}</math></p> <p><math>b^{-5}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{b^5}</math></span></p>               | <p>13. <math>-5x^2y(3xy^{-7})</math></p> <p><math>-15x^3y^{-6}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>-\frac{15x^3}{y^6}</math></span></p>      | <p>14. <math>(2m^4)^{-2}</math></p> <p><math>\frac{1}{(2m^4)^2}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{4m^8}</math></span></p>                                     |
| <p>15. <math>\left(\frac{1}{x}\right)^{-1} \cdot x</math></p> <p><math>x \cdot x</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>x^2</math></span></p> | <p>16. <math>\frac{-20x^7y^3}{4xy^6}</math></p> <p><math>-5x^6y^{-3}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>-\frac{5x^6}{y^3}</math></span></p> | <p>17. <math>\left((b^2)^{-2}\right)^4</math></p> <p><math>(b^{-4})^4</math></p> <p><math>b^{-16}</math></p> <p><span style="border: 1px solid red; border-radius: 50%; padding: 2px;"><math>\frac{1}{b^{16}}</math></span></p> |